



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,126	02/11/2004	Hidenori Yato	118425	2452

25944 7590 08/24/2005

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER
----------

VU, HUNG K

ART UNIT	PAPER NUMBER
----------	--------------

2811

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/775,126

Applicant(s)

YATO, HIDENORI

Examiner

Hung Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Miida (PN 6,504,194, of record).

Miida discloses, as shown in Figures 2A, a solid-state imaging device, comprising:

a pixel array having a plurality of unit pixels, each of the unit pixels including a photo diode (111) and an insulated gate field effect transistor (112) that detects photocharges;

a control circuit that controls the operation of the pixel array [Figure 8], wherein:

the photo diode and the insulated gate field effect transistor share a well region (15a,15b) of a first conductivity type (p type) that is formed in a semiconductor layer (12) of a second conductivity type (n type), the semiconductor layer of the second conductivity type being formed on a semiconductor substrate (11) of the first conductivity type (p type);

an accumulation region that accumulates charges of a given conductivity type generated in response to light incident on the photo diode that formed in the well region of the insulated gate field effect transistor;

the control circuit forward biases a junction region between the semiconductor substrate and the semiconductor layer so as to accumulate a predetermined amount of the charges of the

Art Unit: 2811

given conductivity type in the accumulation region, and discharges the charges of the given conductivity type accumulated in the accumulation region thereafter.

Regarding claim 2, Miida discloses the insulated gate field effect transistor further comprising:

- a source diffused region (16a) of the second conductivity type (n-type) formed on a surface of the well region;

- a drain diffused region (17a) of the second conductivity type formed on a surface of the semiconductor layer other than the surface of the well region;

- a gate electrode (19) formed above the well region between the drain diffused region and the source diffused region with a gate insulating film (18) therebetween;

- a channel region (15c) formed in the surface of the well region below the gate electrode and having an impurity layer of the second conductivity type;

- the accumulation region (25) being a heavily doped buried layer of the first conductivity type formed below the channel region in the well region and adjacent to the source diffused region, having impurity concentration higher than that of the well region;

- the control circuit applied predetermined voltage to at least the drain diffused region to forward bias the junction region so as to accumulate a predetermined amount of the charges of the given conductivity type in the accumulation region, and discharges the charges of the given conductivity type accumulated in the accumulation region thereafter.

Art Unit: 2811

Regarding claim 3, Miida discloses a state where a predetermined amount of the charges of the given conductivity type are accumulated is a saturated state where a maximum amount of available charges of a given conductivity type are accumulated in the accumulation region.

Regarding claim 4, Miida discloses the charges of the given conductivity type being holes if the first conductivity type is a P type and the second conductivity type is an N type.

Regarding claim 5, Miida discloses the charges of the given conductivity type being electrons if the first conductivity type is a N type and the second conductivity type is an P type.

### *Response to Arguments*

2. Applicant's arguments filed 06/06/05 have been fully considered but they are not persuasive.

It is argued, at page 2 of the Remarks, that Miida does not disclose accumulating a predetermined amount of the charges of the given conductivity type in the accumulation region.

This argument is not convincing because this limitation is not given patentable weight since it is considered an operational limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959).

"Apparatus claims cover what a device is, not what a device does." (emphasis in original)

Hewlett - Packard Co . v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Art Unit: 2811

Note that Miida discloses, as shown in Col. 11, lines 7-25, the charges still remain in the carrier packet 25 before initializing operation, and they are exhausted by initializing operation.

*Conclusion*

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday-Friday 6:00-4:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Steven Loke can be reached on (571) 272-1657. The Central Fax Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Application/Control Number: 10/775,126

Page 6

Art Unit: 2811

Vu

August 19, 2005

A handwritten signature in cursive script, appearing to read "Hung Vu", is written above a horizontal line.

Hung Vu

Primary Examiner